

MATHEMATICAL INSTITUTE
ANDREW WILES BUILDING

Job Description and Selection Criteria

Job title	Postdoctoral Research Associate in Algebraic Topology
Division	Mathematical, Physical and Life Sciences
Department	Mathematical Institute
Location	Andrew Wiles Building, Radcliffe Observatory Quarter, Woodstock Road, Oxford, OX2 6GG.
Grade and salary	Grade 7: £42,434 - £48,700 per annum
Hours	Full time
Contract type	Fixed-term (48 months / 4 years)
Reporting to	Dr Jan Steinebrunner
Vacancy reference	189917
Additional information	This is a full-time position that cannot be held concurrently with any other substantive post without the explicit permission of the Head of Department. This post is funded by the Royal Society University Research Fellowship grant “Higher Structures on Moduli Spaces”. **(PLEASE NOTE: Applicants are responsible for contacting two of their referees and making sure that their letters are uploaded to https://workflow.maths.ox.ac.uk/form/reference?vacancy_id=189917 by the closing date.)**

The role

We invite applications for a Postdoctoral Research Associate (PDRA) to undertake research related to homotopy theory and moduli spaces at the Mathematical Institute, University of Oxford. This is a four-year fixed-term position, until September 2031. The successful candidate will be expected to be in post by 1st October 2027, or as soon as possible thereafter.

The successful applicant will become part of the Topology Group in Oxford, whose research spans a broad range of mathematical interests from homotopy theory to low-dimensional topology and geometric group theory, and which includes a large and active community of postdocs and graduate students. Members whose research interests are particularly relevant to the advertised position include Jan Steinebrunner, Ulrike Tillmann, Luciana Basualdo Bonatto, Lukas Brantner, and Christopher Douglas; see https://www.maths.ox.ac.uk/groups/topology/members-topology-group for a full list.

More specifically, the successful applicant will contribute to the research project "Higher Structures on Moduli Spaces" by conducting their own independent research programme in a related area such as algebraic topology of manifolds, higher categories, operadic structures, classifying spaces of diffeomorphism groups, configuration spaces, or moduli spaces of algebraic curves.

Responsibilities

The successful applicant will be a talented researcher who has already produced excellent research during their PhD and in any postdoctoral positions. They will be free to conduct their own research programme. They will be expected to:

- undertake original research of the highest academic standard, broadly in homotopy theory and/or algebraic topology of moduli spaces;
- collaborate with other members of the research group when the opportunity arises;
- disseminate their results via conference presentations and journal publications;
- manage their own academic and administrative activities;
- act as a source of information and advice to other members of the Topology Group, especially to junior members, assisting in their supervision and the development of student research skills;
- actively contribute to the Topology group, by participating in and sometimes organising reading groups, seminars, etc.;
- participate in and contribute to the life of the department.

To aid the development of their academic profile, the PDRA will be given the opportunity to teach. Such teaching, if undertaken, will not exceed 3 hours per week for 24 weeks of the year and additional remuneration will be paid. It will normally be delivered as classes, but it might also involve giving lectures or college tutorials.

The PDRA will be provided with office space, a desktop computer and access to £3000 per annum for travel and other academic expenses.

Selection criteria

Your application will be judged only against the criteria which are set out below. You should ensure that your application shows clearly how your skills and experience meet these criteria.

The University is committed to fairness, consistency and transparency in selection decisions. Members of the selection committee are aware of the principles of equality of opportunity, fair selection and the risks of bias.

If, for any reason, you have taken a career break, parental leave or have had an atypical career and wish to disclose this in your application, the selection committee will take this into account, recognising that the quantity of your experience may be reduced as a result.

Essential selection criteria

The successful candidate will be expected to hold or be close to completion of a PhD/DPhil in Mathematics or a related discipline. In addition, they will be expected to show evidence of:

1) the ability to undertake research of the highest academic standard as evidenced by existing work (e.g. publications), and the clear potential to conduct research independently;

2) a research plan, which outlines promising directions towards genuinely novel and substantial contributions to mathematics, justifies why the candidate is well-placed to pursue them, and intersects the broad area of homotopy theory and/or the study of moduli spaces;

3) participation in conferences, seminars, and research workshops;

4) the ability to communicate mathematics effectively in English, both verbally and in writing, and enthusiasm for explaining mathematics to fellow researchers;

5) the ability to foster a collaborative and inclusive environment for people from different backgrounds and a commitment to demonstrating respect, courtesy and consideration in interactions with members of the University community.

Desirable selection criteria

6) Specific expertise in working with homotopy theory (algebraic topology, higher categories, operadic structures, etc.).

7) Specific expertise in working with moduli spaces (classifying spaces of diffeomorphism groups, configuration spaces, or moduli spaces of algebraic curves, etc.).

Pre-employment screening

Standard checks

If you are offered the post, the offer will be subject to standard pre-employment checks. You will be asked to provide: proof of your right-to-work in the UK; proof of your identity; and (if we haven't done so already) we will contact the referees you have nominated. You will also be asked to complete a health declaration so that you can tell us about any health conditions or disabilities for which you may need us to make appropriate adjustments.

Please read the candidate notes on the University's pre-employment screening procedures at:
https://www.ox.ac.uk/about/jobs/explore-our-careers/applications-process/pre-employment-screening

Proof of qualifications

This post specifies that a PhD qualification is essential. If you are offered the post, you should therefore be in a position to provide proof of this qualification at least three months in advance of your proposed start date, and will be asked to provide the original PhD certificate or transcript as part of the pre-employment checks. If you do not yet have either of these documents, you should provide an academic reference confirming submission of the thesis or that the qualification has been awarded. Failure to present either of these documents in a timely fashion could result in a delayed start. In particular where there is a need to apply for a valid work visa ahead of the appointment, you will need to provide proof of submission at least three months in advance of your proposed start date.

About the University of Oxford

Welcome to the University of Oxford. We aim to lead the world in research and education for the benefit of society both in the UK and globally. Oxford's researchers engage with academic, commercial and cultural partners across the world to stimulate high-quality research and enable innovation through a broad range of social, policy and economic impacts.

We believe our strengths lie both in empowering individuals and teams to address fundamental questions of global significance, while providing all our staff with a welcoming and inclusive workplace that enables everyone to develop and do their best work. Recognising that diversity is our strength, vital for innovation and creativity, we aspire to build a truly diverse community which values and respects every individual's unique contribution.

While we have long traditions of scholarship, we are also forward-looking, creative and cutting-edge. Oxford is one of Europe's most entrepreneurial universities and we rank first in the UK for university spin-outs, and in recent years we have spun out 15-20 new companies every year. We are also recognised as leaders in support for social enterprise.

Join us and you will find a unique, democratic and international community, a great range of staff benefits and access to a vibrant array of cultural activities in the beautiful city of Oxford.

For more information, please visit www.ox.ac.uk/about

The Mathematical Institute

The Mathematical Institute, as Oxford's Department of Mathematics is known, is one of the leading mathematics departments in the world. Our mathematical research, impact and environment have twice been ranked first in the UK, in the 2021 and 2014 Research Excellence Framework exercises, a government review of research in all UK universities. The Mathematical Institute is the focus of research into both fundamental mathematics and its applications, and our inclusive nature and overall size are key factors in the provision of an outstanding research environment for our members. The large number of faculty, postdocs and students in the Mathematical Institute, all supported by excellent facilities, allows us to maintain a critical mass in research groups encompassing a wide spectrum of mathematics, while our integrated nature fosters collaboration between fields. We also host a large number of academic visitors. Our web pages (www.maths.ox.ac.uk) provide comprehensive information about all of our activities.

The research activities of the Institute as a whole can be gauged from the web pages of the research groups and centres within the Institute (www.maths.ox.ac.uk/research). The range of our research interests is well reflected by the profile of our faculty as listed at www.maths.ox.ac.uk/people. Many members of the Institute have received prestigious prizes and other special recognition for their work; some recent examples can be found at www.maths.ox.ac.uk/news.

The Mathematical Institute moved into the purpose-built Andrew Wiles Building in the University's Radcliffe Observatory Quarter in September 2013. As well as providing offices for all staff and graduate students, it houses a range of other facilities available to members of the department, including the Whitehead Library, a large range of meeting rooms, teaching spaces, lecture rooms, and social spaces, and a small laboratory for carrying out table-top experiments. For more information, see www.maths.ox.ac.uk/about-us .

Teaching is central to the life of the Mathematical Institute and we have around 900 undergraduates on course, some on joint courses with other departments. We teach around 250 students each year across five taught master's degree courses, and have over 250 doctoral students in residence at any one time. Our doctoral programme always attracts the best research students from across the world, and we have a broad mentoring and training programme.

The Mathematical Institute strives to ensure that all staff and students are given the opportunities and support they need to achieve their potential. We are committed to equality of opportunities and to advancing women's careers. We support staff returning from long-term absence with teaching relief, offer flexible working arrangements, and the department sponsors University nursery places to support the priority allocation of childcare to our staff. Further information about family support can be found below under University Benefits, Terms and Conditions. Our Equality, Diversity & Inclusion Committee[1] contributes to many aspects of our work.

As part of the department's commitment to openness, inclusivity and transparency, we strongly encourage applications from all who consider they meet the requirements of the post, and particularly from women and ethnic minorities.

We have a number of family-friendly policies, such as the right to apply for flexible working, hybrid working, and support for staff returning from periods of extended absence. We are committed to ensuring an inclusive interview process and will reimburse up to £250 towards any additional care costs (for a dependent child or adult) incurred as a result of attending an interview for this position, which may not be applicable if the interviews are held remotely.

For more information on the Mathematical Institute, please visit: www.maths.ox.ac.uk

We proudly hold a departmental Athena SWAN Gold Award and an institutional Race Equality Charter Bronze Award.

The Mathematical, Physical and Life Sciences Division

Oxford is widely regarded as one of the world's leading science universities, and the University's Mathematical, Physical and Life Sciences (MPLS) Division sits at the heart of this reputation. It offers an outstanding environment for research, teaching, and innovation across the mathematical, computational, physical, engineering, and life sciences. As one of the four academic divisions of the University of Oxford, encompassing nine academic departments, a Doctoral Training Centre and Begbroke Science Park,

[1] The Mathematical Institute was a founding supporter of the London Mathematical Society's Good Practice Scheme (www.lms.ac.uk/women/good-practice-scheme). We have held an Athena SWAN Gold Award since 2026.

it provides a collaborative, interdisciplinary community with a vibrant network of leading researchers and educators.

The division's research outputs, environment, and impact are consistently recognised at the highest levels, both nationally and internationally. MPLS departments regularly appear at the top of global league tables, including the Times Higher Education and QS World Rankings. Our strong performances in the UK Research Excellence Framework in both 2014 and 2021 also highlight the quality and impact of our work. These achievements reflect not only our academic excellence but also the strong networks we foster - with industrial partners, policymakers, and global research institutions.

Our vibrant research environment continues to evolve with major new investments in infrastructure. The Life and Mind Building, the University's largest-ever building project, is now close to completion/opened in 2025. It provides purpose-built facilities for the Departments of Experimental Psychology and Biology in inspiring spaces designed to foster collaboration and brings together researchers working on some of the most pressing questions in life sciences and human behaviour. The striking new Andrew Wiles Building houses our Mathematical Institute next to the Schwarzman Humanities Building, and the Beecroft on the edge of University Parks has provided a transformative home for our physicists. Current plans include significant investment to expand our interdisciplinary research and innovation support facilities at Begbroke Science Park and to transform Osney Mead, to the west of the city centre, into a dynamic innovation district, further strengthening Oxford's position as a world leader in science, technology, and enterprise.

MPLS provides a supportive and inclusive environment for academics at every career stage, from all over the world. The Division has a strong tradition of securing prestigious fellowships and supporting researchers as they progress to leadership roles. We are proud of our diverse community and every department holds an Athena Swan Award.

For educators, Oxford's tutorial system offers an unparalleled opportunity to engage with talented students and contribute to one of the world's most respected teaching systems. The division plays a central role in shaping the future of science through its graduate programmes, with over 3,500 postgraduate students receiving rigorous training and mentorship across MPLS departments.

For more information about the MPLS Division and the dedicated professional support it provides to academics across the sciences, please visit: http://www.mpls.ox.ac.uk

How to Apply

Applications are made through our online recruitment portal. Information about how to apply is available on our Jobs website https://www.ox.ac.uk/about/jobs/explore-our-careers/applications-process/how-to-apply.

Your application will be judged solely on the basis of how you demonstrate that you meet the selection criteria stated in the job description.

You will also be required to upload the following:

- A **supporting letter** of no more than 2 pages, describing how you meet the selection criteria.
- A **curriculum vitae**, without publications, of no more than 3 pages.
- A **list of publications and preprints**. You should highlight the 2 most important papers and explain their significance in each case (at most three sentences each).
- A **statement of research interests** including a proposal for research to be undertaken during the postdoc of 3 to 5 pages (excluding references).

- A **declaration** explaining carefully the **use or non-use of AI** in your mathematical work, with a specification of which parts of your research and writing processes have used AI and how, and an indication of which if any of your papers have utilised AI tools. (At most half a page.)

The supporting letter must explain how you meet each of the selection criteria for the post using examples of your skills and experience. This may include experience gained in employment, education, or during career breaks (such as time out to care for dependants).

Please upload all documents **as PDF files** with your name and the document type in the filename, quoting vacancy reference **189917.**

Applicants are responsible for asking two of their referees to send upload their reference letters to https://workflow.maths.ox.ac.uk/form/reference?vacancy_id=189917 by the advertised closing date. Please note that only two references will be considered. Referees should preferably not all be from the same institution. Whenever possible one referee should be the applicant's current, or most recent, supervisor.

All applications must be received by **12.00 noon** UK time on **the advertised closing date for this post.** Interviews are anticipated to take place on 11th to 15th January 2027

Information for priority candidates

A priority candidate is a University employee who is seeking redeployment because they have been advised that they are at risk of redundancy, or on grounds of ill-health/disability. Priority candidates are issued with a redeployment letter by their employing department(s).

If you are a priority candidate, please ensure that you attach your redeployment letter to your application (or email it to the contact address on the advert if the application form used for the vacancy does not allow attachments).

DATA PROTECTION: All data supplied by applicants will be used only for the purposes of determining their suitability for the post, and will be held in accordance with the principles of the Data Protection Act 1998 and the department's data protection policy.
https://www.maths.ox.ac.uk/members/policies/data-protection/statement

Due to the large volume of recruitment that the department administers we are unable to provide feedback to non-shortlisted applicants.

If you need help

Application FAQs, including technical troubleshooting advice is available at: https://www.ox.ac.uk/about/jobs/explore-our-careers/applications-process/support-with-online-applications

Non-technical questions about this job should be addressed to the recruiting department directly at vacancies@maths.ox.ac.uk.

To return to the online application at any stage, please go to: https://www.ox.ac.uk/about/jobs/explore-our-careers/applications-process/how-to-apply

Please note that you will receive an automated email from our online recruitment portal to confirm receipt of your application. **Please check your spam/junk mail** if you do not receive this email.

Important information for candidates

Data Privacy

Please note that any personal data submitted to the University as part of the job application process will be processed in accordance with the GDPR and related UK data protection legislation. For further information, please see the University's Privacy Notice for Job Applicants at: https://compliance.admin.ox.ac.uk/job-applicant-privacy-policy. The University's Policy on Data Protection is available at: https://compliance.admin.ox.ac.uk/data-protection-policy.

The University's policy on retirement

The University operates an Employer Justified Retirement Age (EJRA) for very senior research posts at **grade RSIV/D35 and clinical equivalents E62 and E82** of 30 September before the 70th birthday.

For **existing** employees on these grades, any employment beyond the retirement age is subject to approval through the procedures: https://unioxfordnexus.sharepoint.com/sites/OXINTRANET-working-here/SitePages/the-ejra.aspx

There is no normal or fixed age at which staff in posts at other grades have to retire. Staff at these grades may elect to retire in accordance with the rules of the applicable pension scheme, as may be amended from time to time.

Equal Opportunity

The University of Oxford is committed to equal opportunity, and to being a place where everyone belongs and is supported to succeed. We recognise how the diversity of our community enriches our ability to deliver on our academic mission.

We welcome applications from individuals from all backgrounds, including those under-represented within higher education. No applicant or members of staff shall be unlawfully discriminated against on the basis of age, disability, gender reassignment, marriage or civil partnership, pregnancy or maternity, race, religion or belief, sex, or sexual orientation.

Employment with the University and progression within employment will be determined according to personal merit and the application of criteria related to the duties and conditions of the post. In all cases, the primary consideration will be the ability to perform the job.

As stated in the University's Equality Policy and Equality, Diversity and Inclusion Strategic Plan, our commitment to equality and diversity goes hand in hand with our commitment to academic freedom and free speech.

Benefits of working at the University

Employee benefits

University employees enjoy 38 days' paid holiday, generous pension schemes, flexible working options, support for sustainable travel and other discounts. Staff can also access a huge range of personal and professional development opportunities. See https://www.ox.ac.uk/about/jobs/working-here .

Employee Assistance Programme

As part of our wellbeing offering staff get free access to a confidential employee assistance programme, available 24/7 for 365 days a year. Find out more at https://www.ox.ac.uk/about/jobs/life-in-oxford/healthcare-and-wellbeing

University Club and sports facilities

Membership of the University Club is free for University staff. It offers social, sporting, and hospitality facilities. Staff can also use the University Sports Centre on Iffley Road at discounted rates, including a fitness centre, power-lifting room, and swimming pool. See www.club.ox.ac.uk and https://www.sport.ox.ac.uk/.

Information for staff new to Oxford

Please see our Life in Oxford webpage for information on relocating to and settling into the Oxford area. The website offers valuable guidance, including information on where to find more details about housing, transportation, finances, healthcare, and other key aspects of living in Oxford and the surrounding region. See https://www.ox.ac.uk/about/jobs/life-in-oxford

There is also a visa loan scheme to cover the costs of UK visa applications for staff and their dependants. See https://www.ox.ac.uk/about/jobs/explore-our-careers/applications-process/visas-and-immigration

Family-friendly benefits

We are a family-friendly employer with one of the most generous family leave schemes in the Higher Education sector (see https://www.ox.ac.uk/about/jobs/explore-our-careers/applications-process/terms-and-conditions-of-employment Our Childcare Services team provides guidance and support on childcare provision, and offers a range of high-quality childcare options at affordable prices for staff. In addition to 5 University nurseries, we partner with a number of local providers to offer in excess of 450 full time nursery places to our staff. Eligible parents are able to pay for childcare through salary sacrifice, further reducing costs. See https://www.ox.ac.uk/about/jobs/life-in-oxford/childcare-and-schooling/childcare

Supporting disability and health-related issues

We are committed to supporting members of staff with disabilities or long-term health conditions, including those experiencing negative effects of menopause. Information about the University's Staff Disability Advisor, is at https://edu.admin.ox.ac.uk/support-for-disabled-staff. The Staff Disability Advisor can be contacted at staffdisability@admin.ox.ac.uk

The University of Oxford Newcomers' Club

The University of Oxford Newcomers' Club is run by volunteers that aims to assist the partners of new staff settle into Oxford, and provides them with an opportunity to meet people and make connections in the local area. See www.newcomers.ox.ac.uk

Research staff

The Researcher Hub supports all researchers on fixed-term contracts. They aim to help you settle in comfortably, make connections, grow as a person, extend your research expertise and approach your next career step with confidence. Find out more https://www.ox.ac.uk/research/support/researcher-hub/about